RESEARCH ARTICLE

COMPARISON OF LECTURE AND GROUP DISCUSSION AS A TEACHING LEARNING METHOD IN MEDICAL EDUCATION

Background: Medical education in the form of didactic lectures have been often criticized on their complete efficacy and outcome parameters. Many different teaching learning methods have evolved since then. The passive way of learning is gradually changing into more of active learning of which group discussion as a pivotal role. Although practiced in small groups, this has had some positive outcomes which needs to be further strengthened particularly in teaching pharmacology, hence this study.
Aims & Objective: The aim of this study was to compare the use of didactic lectures with that of interactive group discussion in undergraduate medical teaching.
Materials and Methods: Sixty medical students were selected on a definite topic in pharmacology, traditional lecture was taken and objective test of ten questions were answered by the students. After six months same topic was selected for group discussion on the same sample of students with 6-8 students each in a group, with a designated leader and a scribe among them with a facilitator. The same objective test was given to the students. At last, positive perception questionnaire on group discussion was taken by the students.
Results: The students when in the interactive discussion group scored high (88.3%) but in lecture group (42.5%) with highly significant P value < 0.001. Also average positive perception percentage questionnaire for group discussion was 94.66%.
Conclusion: We found some evidence that knowledge retention is better following an interactive group discussion than the didactic lecture. We also found that interactive group discussion are more popular than didactic lectures in undergraduate medical students.
Key Words: Group Discussion; Lecture; Students Perception; Medical Education

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INTRODUCTION

In recent years there has been a shift in healthcare education from a teacher centred approach, where the emphasis is on teachers and what they teach, to learner centred education where the emphasis is on the students and what and how they learn.[1] Lectures are unable to meet many of these requirements. To realize the principles of adult education educators have embraced other teaching methods of which small group teaching has been the most prominent. Small group discussion provides a unique environment to achieve high standards in medical education.[2] Here we did a study on comparison of lecture and group discussion.

MATERIALS AND METHODS

A total of sixty students from third year MBBS were selected for the study. They were already sensitized to pharmacology theory classes for the past one year. The approval for the study was obtained from the head of the Department of Pharmacology, Karuna Medical College and informed consent was obtained from all sixty students individually. A common pharmacology topic (drug development process and clinical trials) was chosen for lecture and group discussion, which was done six months apart to avoid recent memory bias. Lecture session took one hour and the group discussion took over two hours. Group discussion was done with circle arrangement of the students (Figure 1).

Figure-1: Group discussion

A same set of post-test on the topic (objective test questions appendix 1 attached) was taken by all the students after lecture and group discussion. The mean, standard deviation, and standard error of mean were calculated for the test. Mean values were compared between the lecture and group discussion, using unpaired t-test for the difference in mean scores. All statistical analysis was done using graph pad software and they were two tailed, considered significant if $p<0.0001$. The students perception questionnaire (10 point perception

questionnaire appendix 2 with results attached) about group discussion taken by the students were also tabulated and average calculated.

RESULTS

Among the sixty students, the objective test percentage was 42.5% after lecture class. The same was 88.3% after group discussion. The significance between two by unpaired t test P <0.001, which is extremely significant. The mean and confidence interval values of both in table 1. These results show that the students outperform after group discussion rather than the traditional didactic lecture classes. The positive perception percentage a total average of 94.66% shows that the students enjoyed in this active learning process. (Appendix 2)

Table-1: SD, CI, Mean, Mean % for lecture and group discussion

Values	Lecture	Group Discussion
Standard Deviation (SD)	1.23	1.14
95% Confidence Interval (CI)	3.92 to 4.57	8.54 to 9.13
Mean	4.25	8.83
% Mean	42.5%	88.3%

DISCUSSION

The lecture is the most traditional method of imparting knowledge to students. It is the teaching method that is used frequently in the majority of medical schools despite the problems that are often attributed to it.[3]

Student learning is one of the primary goals of universities. Suitable student-oriented teaching methods can help motivate students and help them realize their potential. One of these methods is small group teaching. It is student-centered and the tutor plays the role of facilitator.[4] Small group teaching has been the highlights of a revolution in medical education over the last 40 years.[5] Small group teaching is a rather broad term without a clear definition. It covers tutorials, seminars and small problem-solving classes. A small group is a number of people who interact in a face to face situation where the size of the group may vary from a handful of students to around 30 participants and about 8-12 is an optimal number.[6,7] The concept of interactive sessions and small group teaching is not new. Socrates was a great exponent of this method of teaching.[8]

Knowles' Principles of Adult Learning: (1) An effective learning climate should be established. Learners should be comfortable, both physically and emotionally. They should feel "safe" to express themselves without judgment or ridicule. (2) They should be involved in planning (in deciding what they learn and how they learn). (3) They should be involved in evaluating their own learning needs. (4) They should be encouraged to set their own learning outcomes. (5) They should be encouraged to identify the resources they need and devise strategies for using them to achieve their outcomes. (6) They should be helped to carry out their learning plans. One of the key elements of motivation is the expectancy of success. Learners become discouraged if a task is too difficult. In addition, too much pressure without support can have an adverse effect. (7) Learners should be involved in evaluating their learning. They should consider not only what they learnt but also how they learnt.[1]

In our study also we had taken at most care to abide by the Knowles principles of adult learning. Interactive learning in small groups has been evaluated more positively than formal lecturing by medical students and medical professionals alike.[9] Literature strongly supports small group learning for engagement of students in a deeper and more meaningful learning[10] but not in terms of better score[11,12].

Comparison of learning in small group and large group formats has been an important focus of educational research in the recent past. There is a general consensus about better learning in small groups in terms of deeper understanding, critical thinking problem solving skills(13), and better student satisfaction[13-15] but not in terms of factual knowledge and assessment scores[11,12]. But in our study even the scores were better in terms of retention and understanding of the topic.

Limitations of the Study

From the perception questionnaire small percentage (10-20%) of students opined that there is no use of group discussion in understanding unknown concepts. They also were of the opinion that not all of them contributed equally and in some groups the leader did not give enough space to express them and they are time consuming. All these negative views although minimal cannot be under-estimated because these grey areas need more research in paving a way to new teaching learning methods.

CONCLUSION

We found some evidence that knowledge retention is better following an interactive group discussion than the didactic lecture. We also found that interactive group discussions are more popular than didactic lectures in undergraduate medical students.

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APPENDIX-1

Drug Development Process, Clinical Trials (choose the best answer)

1. Preclinical trials involve
   (A) animals (B) humans (C) both (D) none
2. CDSCO is a body which takes care of drugs used for
   (A) All animals (B) Experimental animals (C) Humans (D) All
3. Full form for IND is
   (A) indian new drug (B) investigational new drug
   (C) international new drug (D) Intentional new drug
4. Drug development process takes on average
   (A) <1 month (B) < 1 year (C) < 5 years (D) >10 years
5. Human trial all over the world should be conducted according to
   (A) ICMR (B) GCP (C) GMP (D) Any of the above
6. Healthy volunteers are recruited in phase
   (A) 1 (B) 2 (C) 3 (D) 4
7. Post-marketing surveillance and Pharmacovigilance are part of phase
   (A) 1 (B) 2 (C) 3 (D) 4
8. Microdosing is a new concept in which phase
   (A) 0 (B) 1 (C) 5 (D) 3
9. Control subjects are used in phase
   (A) 1 (B) 2 (C) 3 (D) 4
10. Therapeutic exploration is done in which phase
    (A) 1 (B) 2 (C) 3 (D) 4

APPENDIX-2

Group Discussion: Students Perception Questionnaire Percentage "Yes" Response

1.	Did the group discussion facilitate for active learning?	100%
2.	Did you understand the unknown concepts not known by lecture?	90%
3.	Will you recommend group discussion to your juniors?	100%
4.	Did you appreciate the importance of group dynamics?	98.34%
5.	Did u enjoy while learning through groups?	100%
6.	Do you think group discussion as the best for small group learning?	98.34%
7.	Is it time saving for learning?	91.67%
8.	Do u think all your colleagues participated actively?	80%
9.	Do u think that your leader gave equal chances to contribute your views?	90%
10.	Do u think the facilitator was of use in group discussion?	98.34%
	Average	**94.66%**